

## PATENT COOPERATION TREATY

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## NOTIFICATION OF ELECTION

(PCT Rule 61.2)

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Date of mailing (day/month/year) 27 July 2000 (27.07.00)	
International application No. PCT/SE99/02116	Applicant's or agent's file reference Case 714 PCT
International filing date (day/month/year) 18 November 1999 (18.11.99)	Priority date (day/month/year) 21 November 1998 (21.11.98)
Applicant SJÖBERG, Frank et al	

1. The designated Office is hereby notified of its election made:

☒ in the demand filed with the International Preliminary Examining Authority on:

20 June 2000 (20.06.00)

☐ in a notice effecting later election filed with the International Bureau on:

2. The election ☒ was  
☐ was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

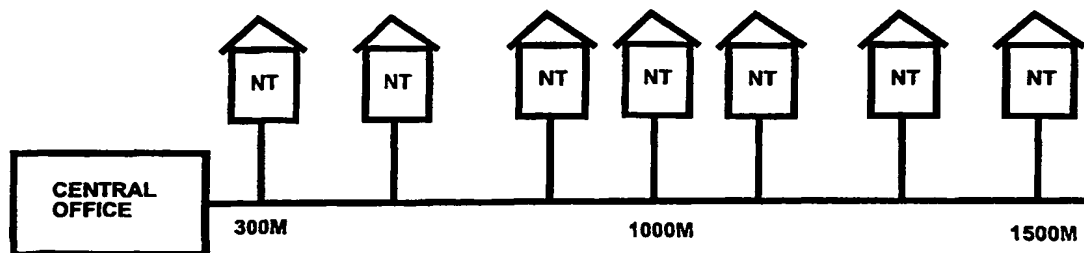
<p>The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland</p> <p>Facsimile No.: (41-22) 740.14.35</p>	<p>Authorized officer</p> <p>Manu Berrod</p> <p>Telephone No.: (41-22) 338.83.38</p>
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## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

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(71) Applicant (for all designated States except US): TELIA AB (publ) [SE/SE]; Mårbackagatan 11, S-123 86 Farsta (SE).		<b>Published</b> <i>With international search report.</i> <i>Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i>	
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(54) Title: IMPROVEMENTS IN, OR RELATING TO, VDSL TRANSMISSION SYSTEMS



## (57) Abstract

One problem, frequently encountered with VDSL transmission systems, is that upstream FEXT produced by system users having short wires can be very strong. Users having shorter wires get high bit rates whereas users having longer wires get low bit rates. In extreme cases it may happen that users with wire lengths greater than 1000 metre cannot transmit data upstream. The present invention provides a VDSL transmission system with a plurality of modems. The modems are located at varying distances from a central station. There is a target bit rate for each modem. These modems on shorter wires have control means for reducing their transmit power. This reduces the FEXT produced by these modems enabling modems on longer wires to transmit at higher bit rates.

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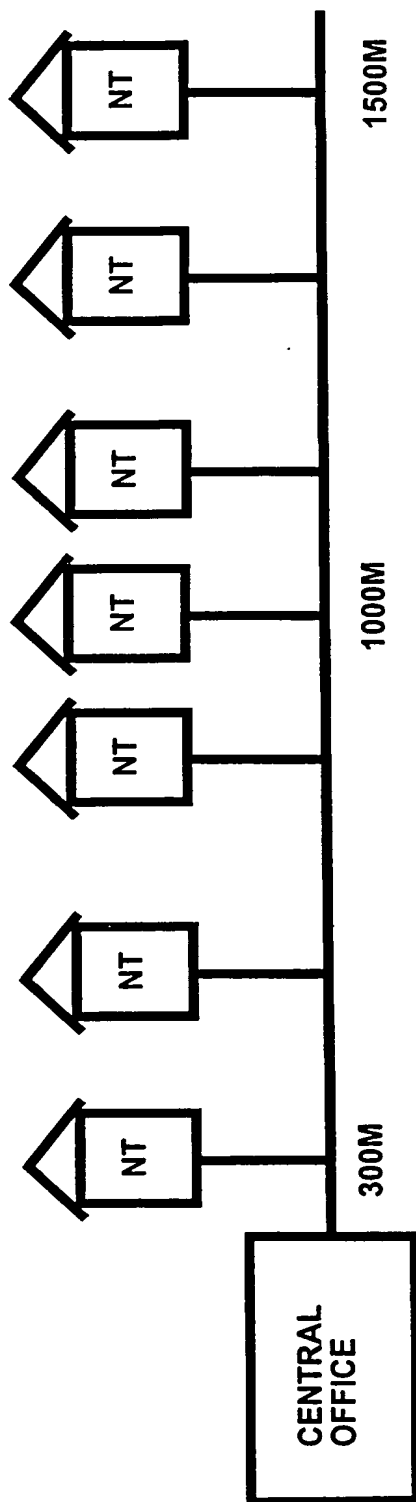


FIGURE 1

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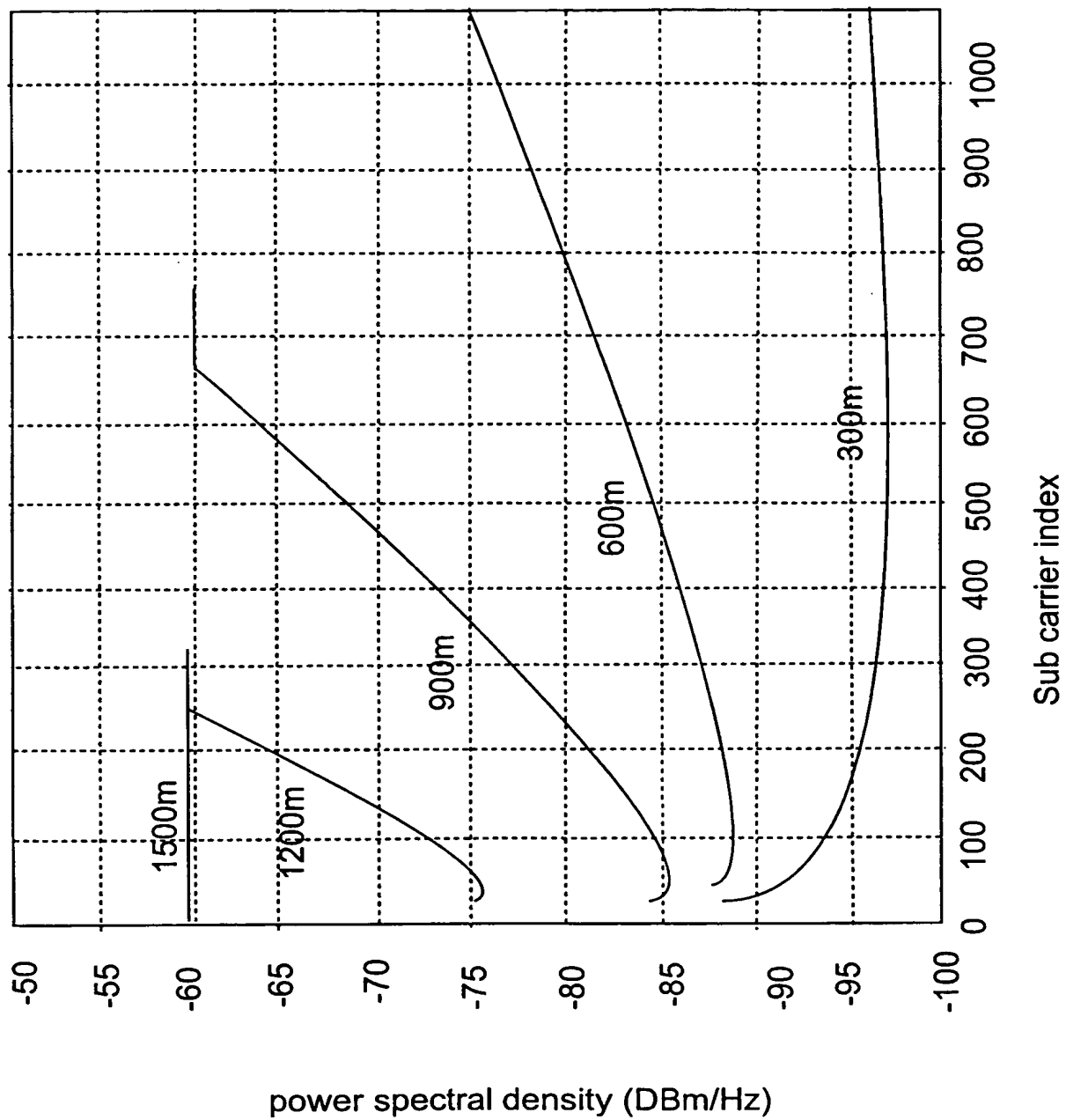


Fig 2

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/SE 99/02116

## A. CLASSIFICATION OF SUBJECT MATTER

IPC7: H04B 3/32, H04B 3/04

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7: H04B, H04L

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE,DK,FI,NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P,A	WO 9923764 A1 (TELIA AB (PUBL)), 14 May 1999 (14.05.99)  --	1-23
A	WO 9810528 A1 (AMATI COMMUNICATIONS CORPORATION), 12 March 1998 (12.03.98), page 3, line 27 - page 5, line 17  -- -----	1-23

☐ Further documents are listed in the continuation of Box C.☒ See patent family annex.

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Date of the actual completion of the international search

3 April 2000

Date of mailing of the international search report

06-04-2000

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**INTERNATIONAL SEARCH REPORT**  
Information on patent family members

International application No.  
**PCT/SE 99/02116**

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 9923764 A1	14/05/99	SE 510641 C SE 9704009 A	14/06/99 04/05/99
WO 9810528 A1	12/03/98	AU 4170797 A US 5887032 A	26/03/98 23/03/99